Fenton Hill Report

Los Alamos National Laboratory
Los Alamos, New Mexico 87544

December 10, 1986

Jim Miller, ESS-4, Ext. 1915

Exp. 2070 Data Package:

Briefly, a background temperature log in EE-2 was run on Dec. 3. The well was under about 80 psi and was bled to 0 psi before the temperature tool was placed in the hole. Note that the pressure went to zero, but the flow did not and it was necessary to shut the well back in during logging.

The pumping started at 10:00 am of Dec. 5th. EE-2 built to 500 psi in about 5 hrs and a shut-in temperature log was started at 15:50. Logging continued until 22:45. Starting with the 22:35 vent the well started producing a considerable amount of gas and from that time on the turbine flow meter was reading up to twice the flow rate as was obtained by strapping the "gold" tank.

The experiment was conducted at two different flow rates. First, 133 gpm from the start until 16:00 at which time it was reduced to 120 gpm due to pump oil over-heating concerns. There are four shut-ins during the test. The first occurred at 23:55 for pump servicing. The second occurred the next morning at 8:00 again for pump servicing. The third was a short shut-in at 11:14 while Coat 415 corrosion inhibitor was being pumped into EE-3. Finally, the fourth was at the end of the pump at 12:30 when the inhibitor reached the bottom of the tubing string.

During the test a total of 182,340 gallons of water was pumped.

After pumping EE-3 was shut-in and EE-2 was choked back to about 40 gpm and left venting with instrumentation running. Storm related power outages caused a loss of some data over the weekend.

EE-1 and GT-2 were instrumented for pressure. The conclusion is that no defensible pressure increase was observed in either well.

The level of water in the EE-1 pond was reduced over a foot during the test. We are back to our original level today, this includes flow from the vent, minus water flashed to steam, plus about a foot of snow. Finally the well is still venting a small amount of water (same choke setting throughout the entire vent), and EE-2 is reading 80 psi.

J. MILLER

EXPERIMENT # 2070

PUMP INTO EE-3A WITH SUPER PUMP.

PURPOSE: TO ASSURE THAT EE-2 IS STILL ABLE TO FLOW FOLLOWING RECENT REPAIR OPERATIONS, AND TO DETERMINE IF FLOW ZONES ARE STEALING MORE FLOW.

DATE TO START: DEC. 4, 1986

PROCEDURE: INCLUDES A EE-2 TEMP. SURVEY.

DECEMBER 4, 1986 EXP. 2070 EE-3 PUMP

0800	SIATION MANNED, WICK, JACK, AND ROSCO. PRESS. DUCERS ARE INSTALLED AND BALANCED. EE-3 F.S., B.S., AN ANNULUS. EE-2 F.S.. SUPER PUMPER FLOW METER WAS RECALIBRATED,BUT NOT YET VERIFIED. NO REMOTE READ-OUT TO DAT.
0907	EE-2 F.S. VALVED ON LINE, AND EE-3 F.S. VALVED OUT FOR PLANNED PRESSURE TEST.
0917	PRESSURE TESTING STARTED
0958	EE-3 F.S. DUCER ON LINE
1000	PUMP STARTED, PRESS. AT EE-3 F.S.. 135 GPM ON SUPER-PUMPER METER. NOTE: CRAIN METER READING BEFORE PUMP STARTED = 313140
1006	EE-3 - LEAK IN DUCER CAN, DUCER VALVED OUT, AND VALVED BACK IN AT 1008. LEAK FIXED.
1024	EE-2 VENT TEMP. - ON LINE
NOTE	SUPER PUMPER FLOW METER CORRELATES WITH TIMED CRANE READINGS.
1050	EE-2 VENT FLOW RATE CALIBRATED AND ON LINE.
1220	JIM MILLER REPORTS EE-1 F.S. = 12PSI, GT-2 F.S. = 0 PSI
1500	CRANE METER READING = 352500
1514	RIGGING UP FOR TEMP. LOG IN EE-2
1531	TEMP. TOOL AT ZERO. USING OFF-SHORE RIG UNIT #1, AND THERM. # 3.6. SEE PAGE # 95 IN LOG BOOK # A003772 FOR TEMP. PLOT.AND PAGE # 96.
1545	0 TO 500 PSI DUCERS HAVE BEEN INSTALLED AT EE-1 AND GT-2 FRONT-SIDES. DATA IS NOW DISPLAYED ON STRIP-CHART ONLY. EE-1 = 12 PSI. GT-2 = 1 PSI
1550	RUNNING LOG. EE-2 PSI IS 472
1621	NOTIFIED BY DON DREESEN THAT LUBRICATOR HAS SLIPPED UP ABOUT 8FT. THEY HAVE INSTALLED SLIPS.
1637	T.A. AT 7000 FT. 3 FT. PULL
1657	T.A. AT 9700 FT. 3 FT. PULL
1711	STOPPED AT T.D. = 10480 FT.
1715	STOPPED AT 10400 FT.
1724	9835 TO 1 MIN. SCANS, FROM 5 MIN. SCANS
1727	TOTAL FLOWS PRINTER ENABLED
1736	VENTING EE-2
1737	WIDE OPEN = 147 GPM, 120 PSI

1800 CRANE METER READS = 376250
1900 CRANE METER READS = 382100
1919 GOING DOWN WITH TEMP. TOOL, TO 10480 FT.
1930 LOGGING UP HOLE TO 9500 FT.
1943 STOPPED AT 9500 FT. EE-2 SHUT-IN 9335 GALLONS VENTED
2000 LOGGING BEGINS TO 10480 FT.
2025 TOOL AT 10480 FT.
2035 BEGINNING EE-2 VENT
2102 LOGGING UP TO 9200 FT. AT 50 FT./MIN.
2130 LOGGING TO SURFACE AT 150 FT./MIN.

2230 EE-2 VENT FLOW = 300 GPM - MONITOR SET UP FOR 200 GPM. 300 GPM IS NOT A VALID READING. LYNN IS STRAPPING GOLD TANK, STRAPPED AT 90 GPM. MONITOR OR FLOW METER MAY BE BAD ????
2238 TEMP. TOOL AT 100 FT.
2244 BAD FLOW METER AT EE-2 VENT FLOW
2308 REPLACED MONITOR, BUT PROBLEM STILL EXISTS. TURBINE FLOW METER IS BAD, FOUND A PIECE OF RUBBER IN IT.
2325 TANK STRAP IS 55-60 GPM
2355 SHUTTING IN TO CHANGE FLOW METER

DATE: DECEMBER 5, 1986

0000 EE-2 VENT TEMP. DISCONNECTED TO CHANGE FLOW METER
0017 MECH. CREW REPORTS A PIECE OF RUBBER WAS STUCK IN TURBINE FLOW METER.
0021 REPLACED TURBINE FLOW METER WITH SN-2F55792, K=53.46, RANGE= 1, FREQ.= 120 HZ., V CAL.= 3.35VOLTS S= .67
0023 EE-2 VENT TEMP. BACK ON LINE

0443 OPENING VENT VALVE A LITTLE
0450 PRESS. IN EE-2 DROPPING ABOUT 7 OR 8 PSI/MIN FLOW IS TO HIGH = 299 GPM
0520 CHOKING BACK ON VENT VALVE, PRESS. = 255PSI FLOW = 60 TO 80 GPM
0523 CHOKING BACK SOME MORE, PRESS. = 272PSI AND RISING FLOW = 15 TO 30 GPM
0600 CRANE METER READING = 453700
0604 OPENING CHOKE A LITTLE, 416 PSI, 76 GPM
0610 STRAPPING TANK
0619 TANKED STRAPPED AT = 45 GPM
0634 NOTE: TOTAL GALLONS PUMPED = 140560

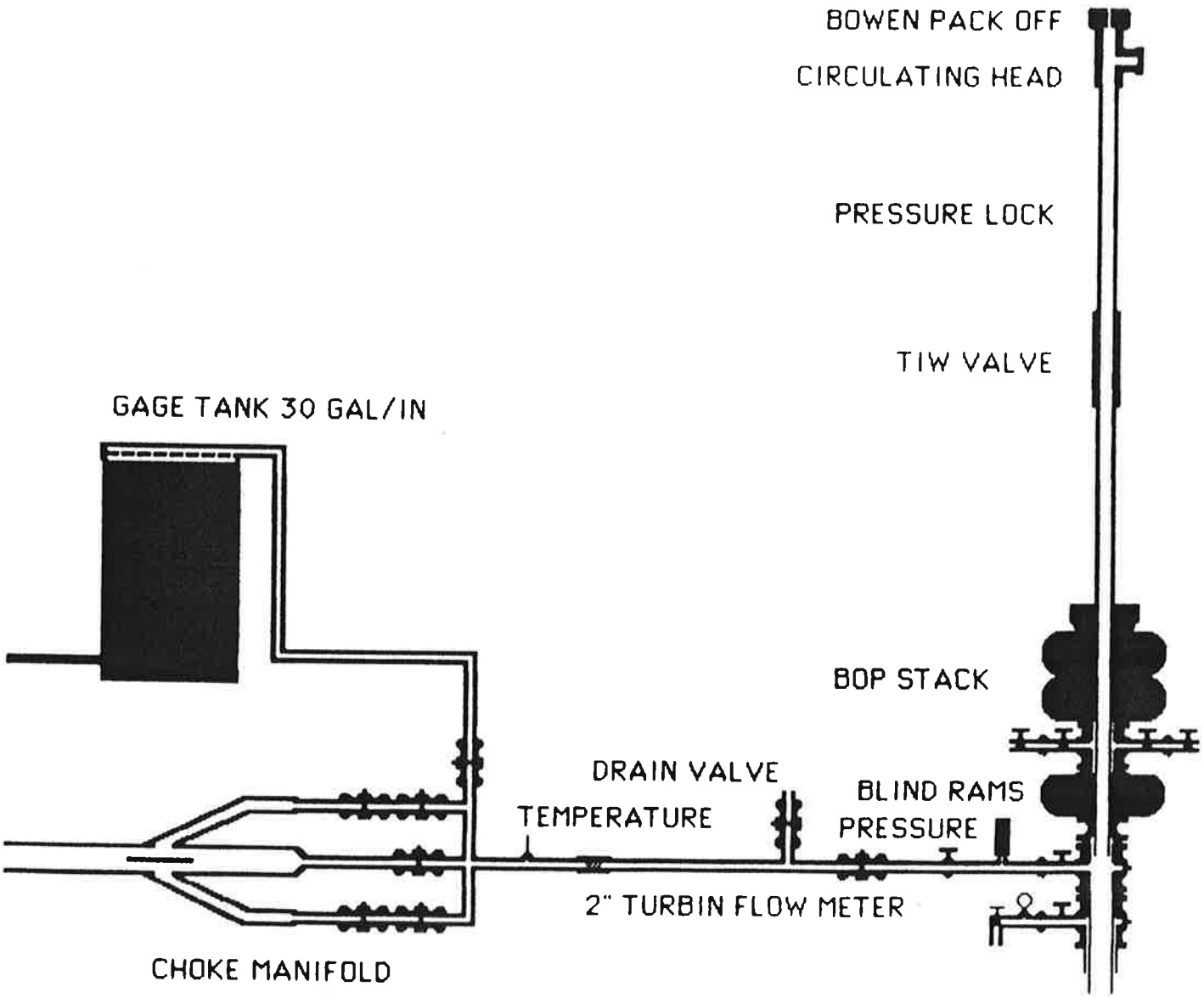
0656 STRAPPING TANK AGAIN
0700 TANK STRAPPED AT 48 GPM
0704 CRANE METER READING = 461000
0800 SHUT IN FOR PUMP SERVICE. WICKHAM, & BUTLER ON SHIFT.
0930 GOLD TANK WATER LEVEL INCREASED 7" IN 5 MIN.
1000 CRANE METER READING = 477550

1012 SWITCH TO CHOKE MANIFOLD FROM CALIBRATION TANK, IN PREPARATION FOR SHUT-DOWN.
1110 CRAIN METER READING = 486275
1114 PUT RUST INHIBITOR IN EE-3. PUMP OFF.
1115 RUST INHIBITOR IN, DUMPING HOLDING TANK AND RUST INHIBITOR AT ABOUT 33GAL./MIN.
1126 PUMP BACK ON, FLOW RATE = 120 GPM
1230 SUPER PUMPER SHUT-DOWN. OFF-LINE
FINAL CRAIN READING REPORTED = 495480
1259 WILL MOVE EE-3 F.S. DUCER, TO INSIDE OF TOWER
1309 EE-3 F.S. IS BACK ON LINE
1345 DATA PULLED, BUTLER WILL TRANSPORT TO MILLER.
1437 SHUT DOWN DATA SYSTEM TO CHANGE POWER FROM UP'S TO INSTRUMENTATION REGULATED AC POWER. WHEN RE-ENERGIZED; FOUND THAT TOTAL FLOWS PRINTOUT HAD STOPPED.
1444 TOTAL FLOWS PRINTER RESTARTED. STARTED COUNTING FROM ZERO CAL. APPARENTLY ANY POWER INTERRUPT WILL STOP TOTAL FLOWS PRINTER.
1500 TIME INCREMENT CHANGED TO 15 MIN.
1630 LEAVING STATION UNMANNED FOR WEEKEND. GUARDS WILL CHECK DATA SYSTEM EVERY FOUR (4) HOURS.

DATE: MONDAY DEC. 8, 1986 EXP. 2070 VENT

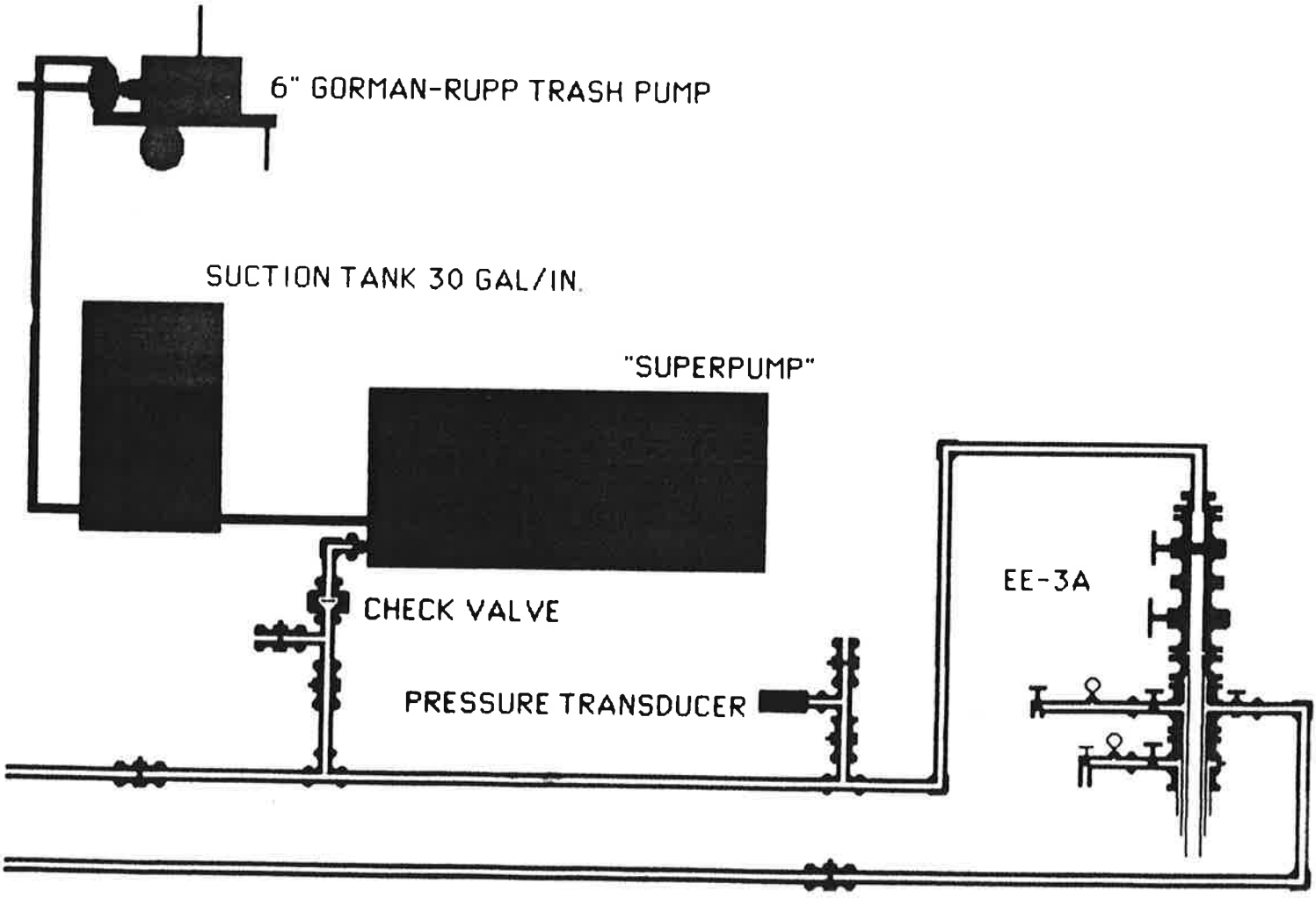
0830 4 POWER OUTAGES SUNDAY DEC. 7th INTERUPTED TOTAL FLOW PRINTER. ADD 61470 GAL. TO CURRENT READINGS.
1030 EE-1 AND GT-2 F.S. DUCERS WHERE RE-ZEROED. RE-CAL AMPS. RE-SET CHART RECORDERS. EE-1 F.S. = 12 PSI GT-2 F.S. = 3 PSI.

EXP. 2070
EE-2

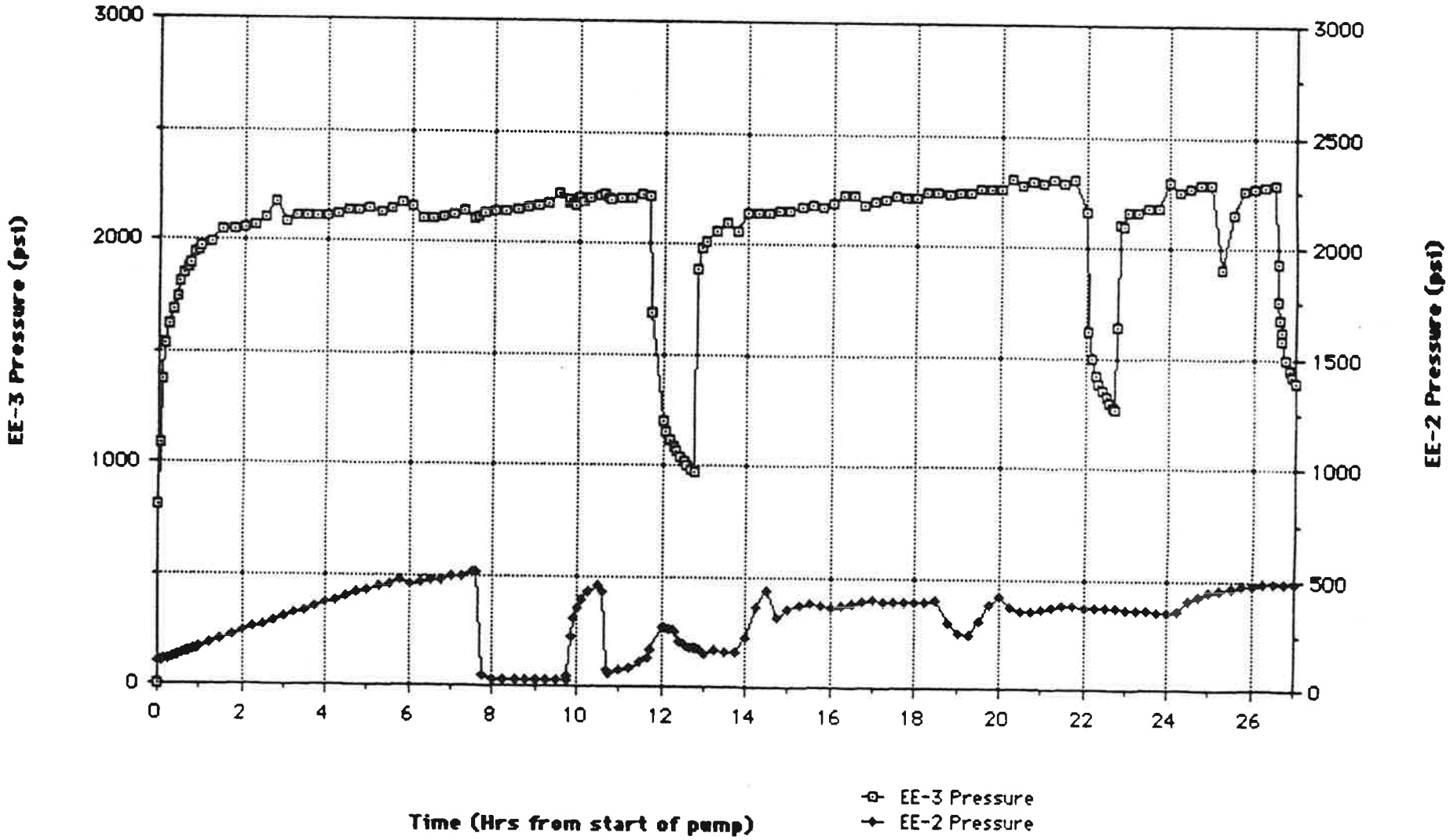


EE-2

EXP. 2070
EE-3A

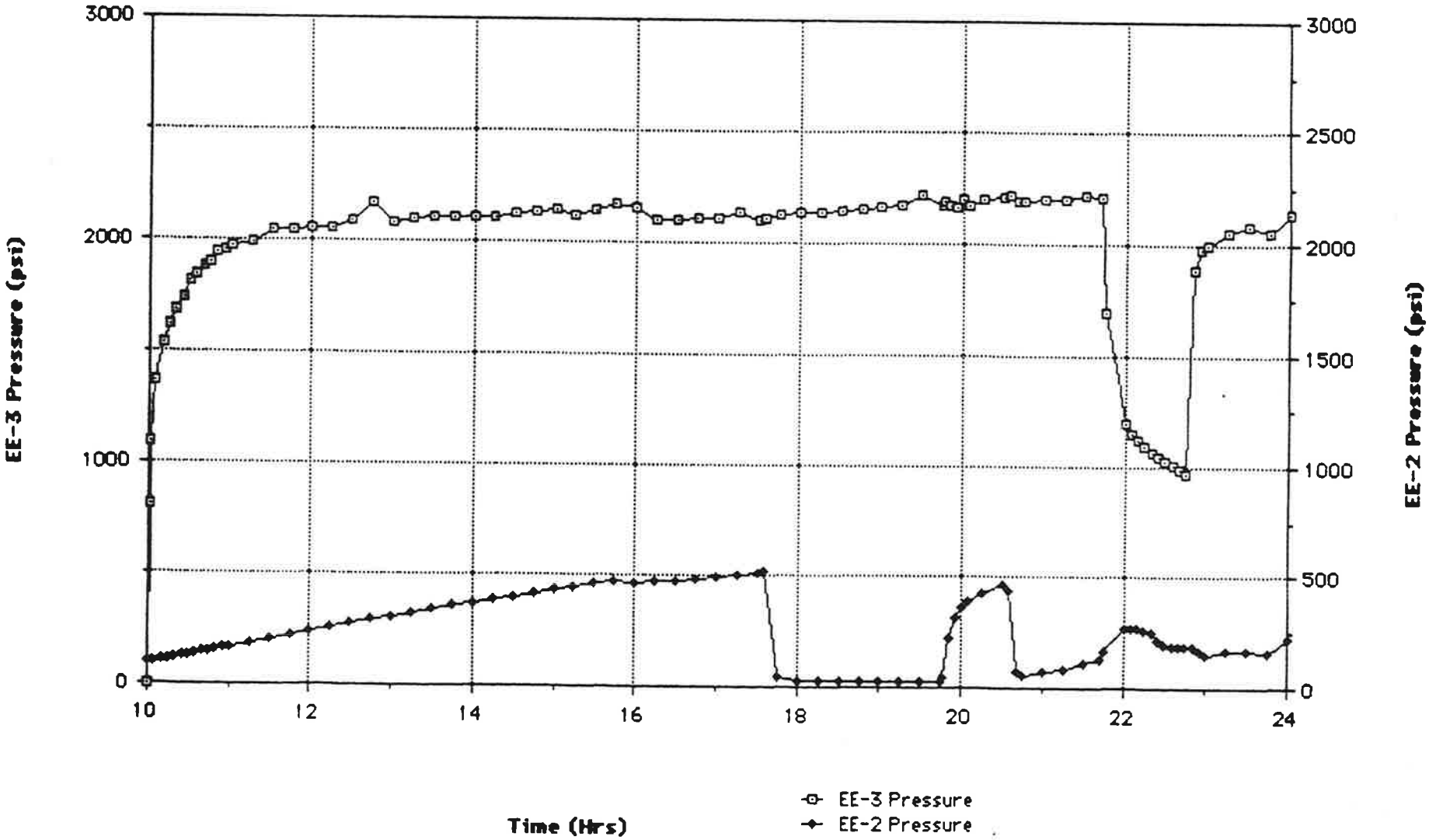


EXP. 2070


EE-3 Pressure (psi)
EE-2 Pressure (psi)
Time (Hrs from start of pump)
EE-3 Pressure
EE-2 Pressure
3000
2000
1000
0
2500
1500
500
0
2
4
6
8
10
12
14
16
18
20
22
24
26

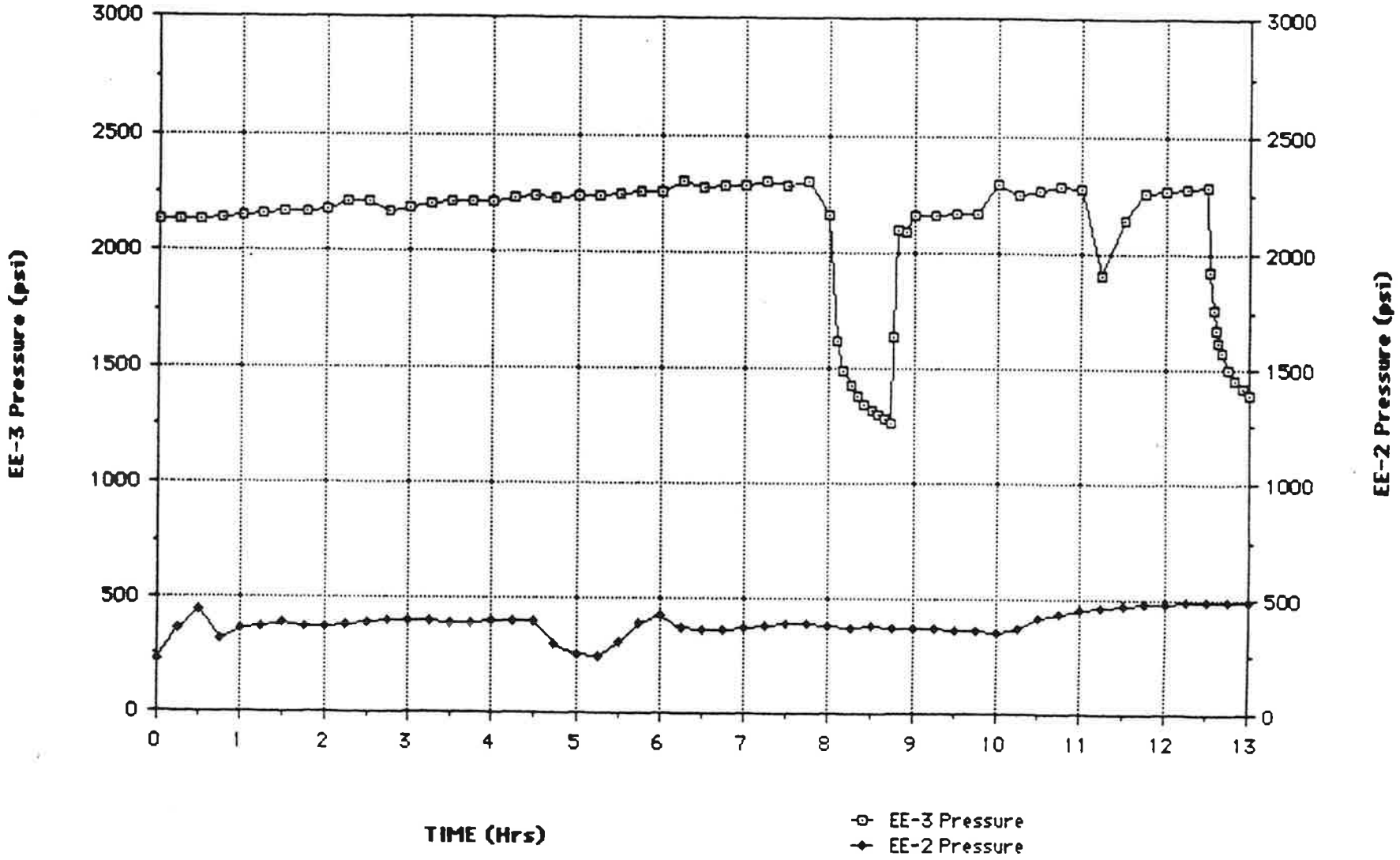
EXP. 2070

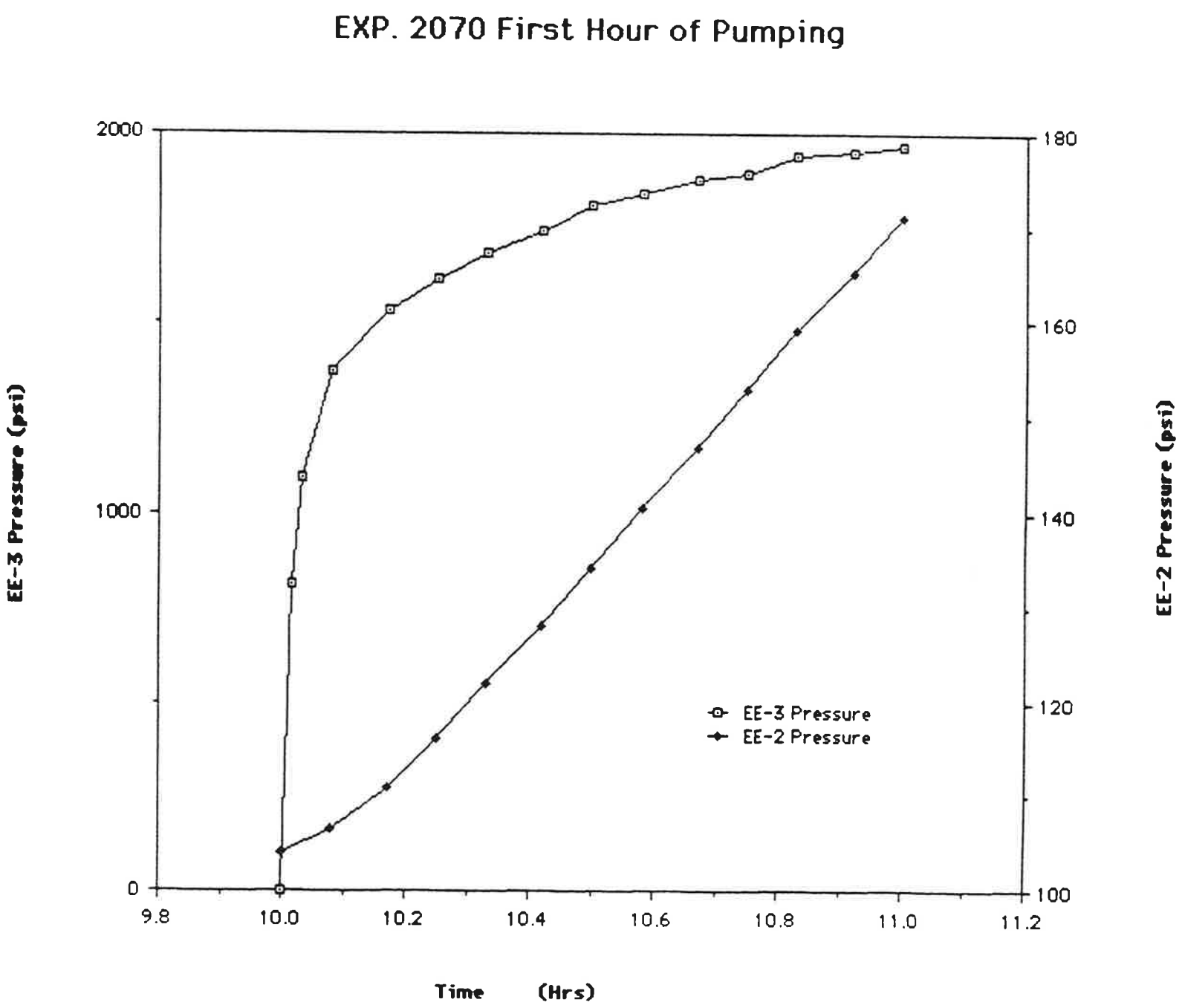
(10:00 to 24:00) 12/4/86

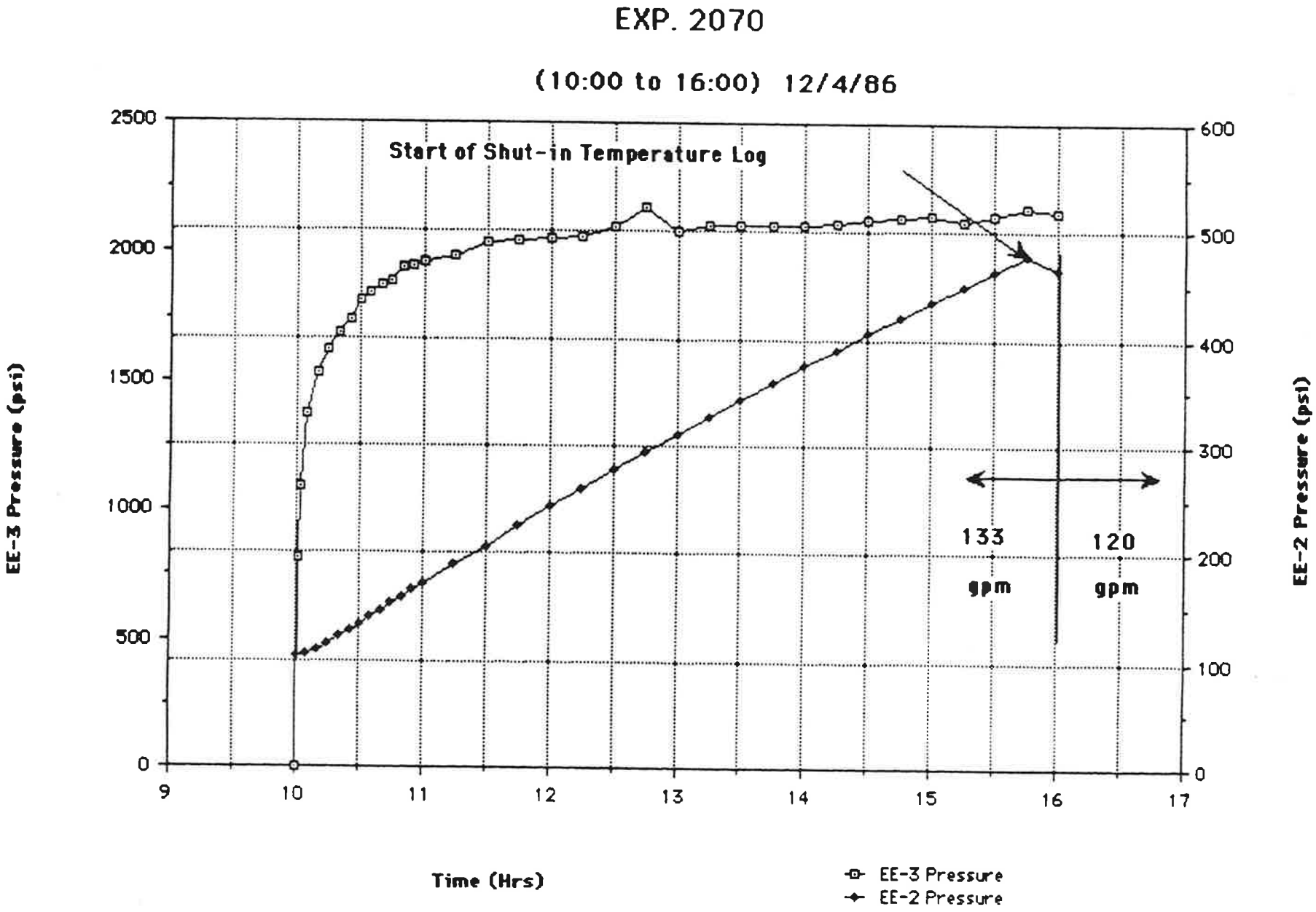


EXP. 2070

(00:00 to 13:00) 12/5/86

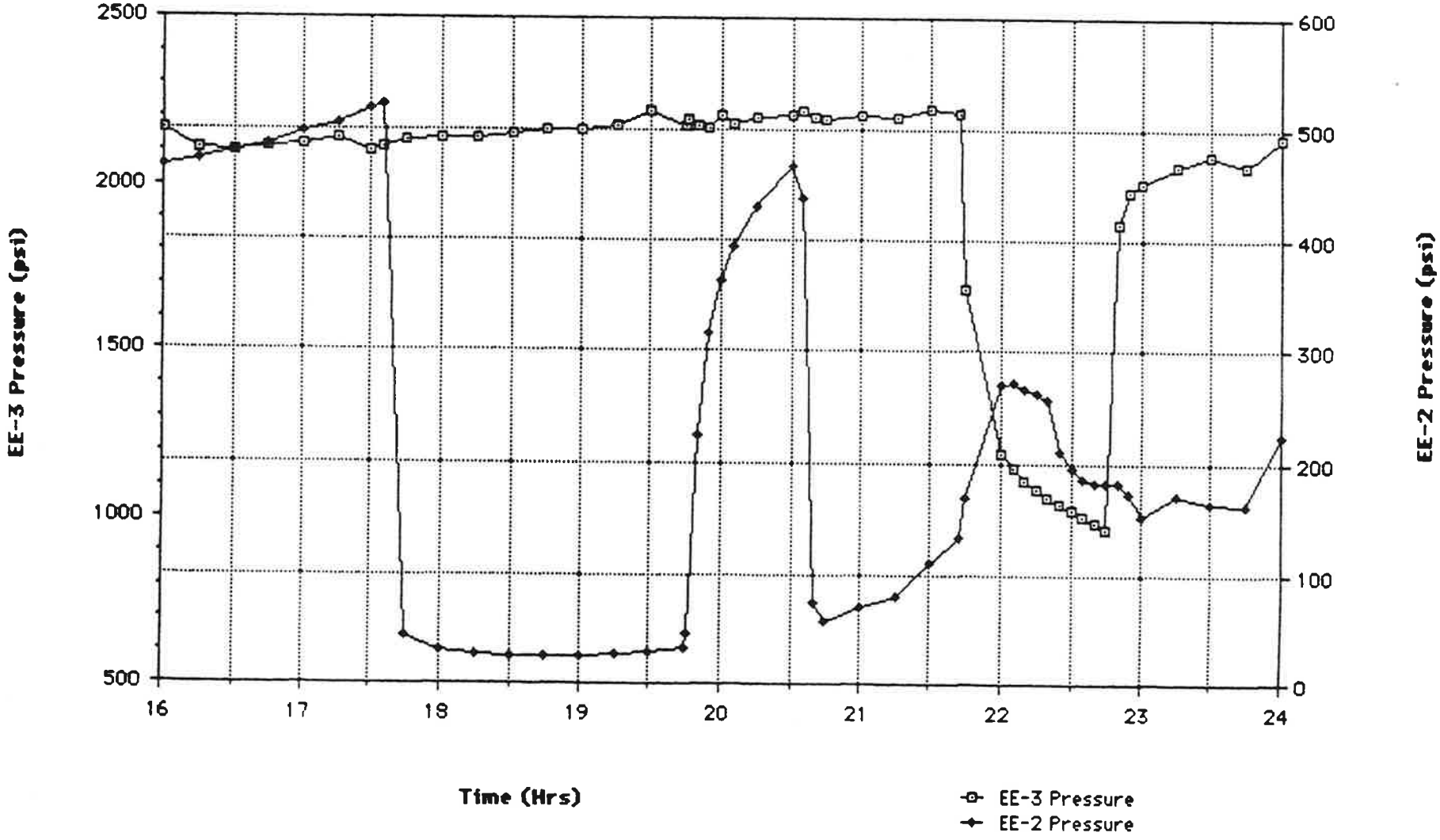



EXP. 2070 First Hour of Pumping
2000
1000
0
180
160
140
120
100
9.8
10.0
10.2
10.4
10.6
10.8
11.0
11.2
EE-3 Pressure (psi)
EE-2 Pressure (psi)
Time (Hrs)
EE-3 Pressure
EE-2 Pressure


EXP. 2070
(10:00 to 16:00) 12/4/86
Start of Shut-in Temperature Log
133 gpm
120 gpm
EE-3 Pressure (psi)
EE-2 Pressure (psi)
Time (Hrs)
EE-3 Pressure
EE-2 Pressure
2500
2000
1500
1000
500
0
600
500
400
300
200
100
0
9
10
11
12
13
14
15
16
17

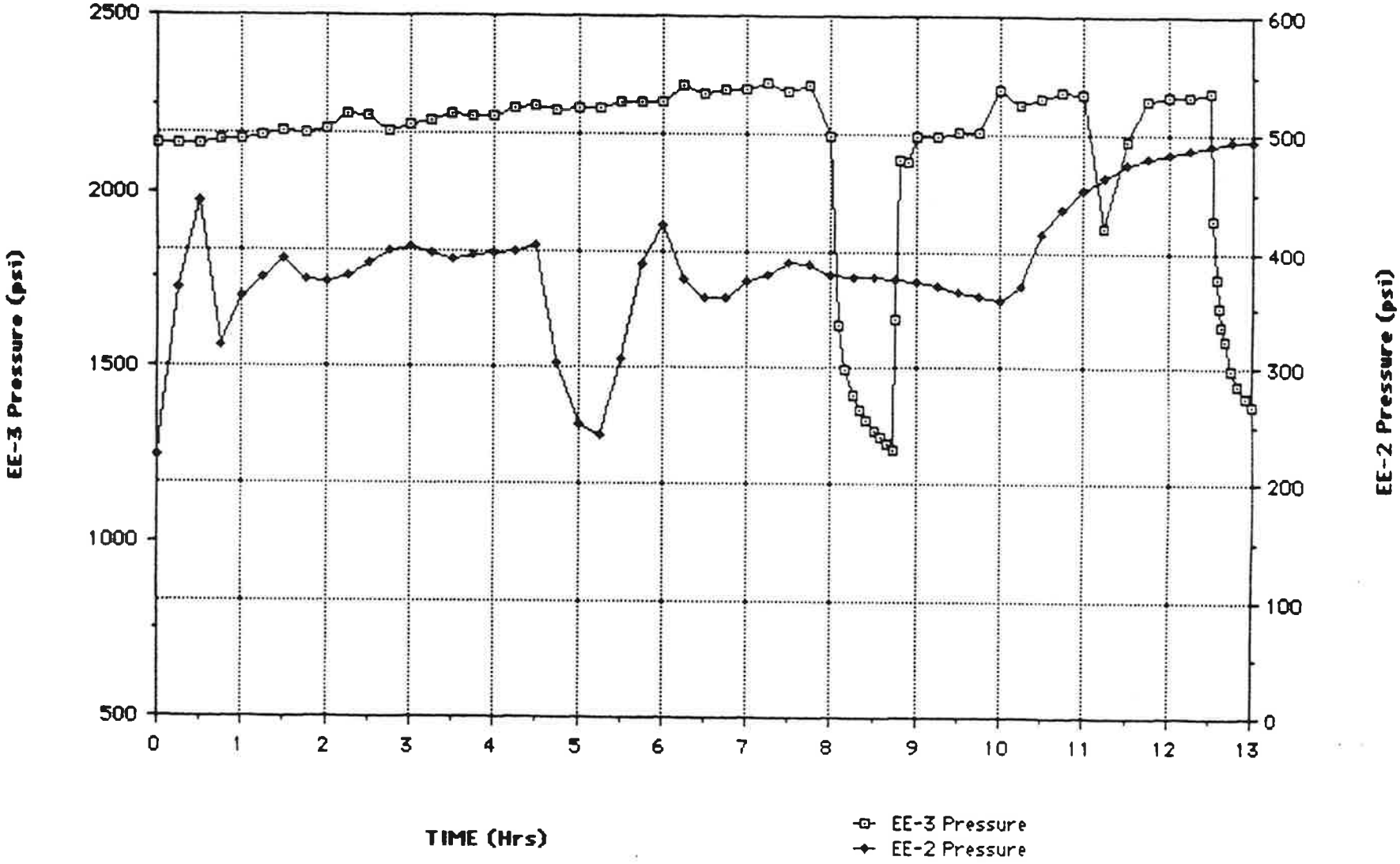
EXP. 2070

(16:00 to 24:00) 12/4/86

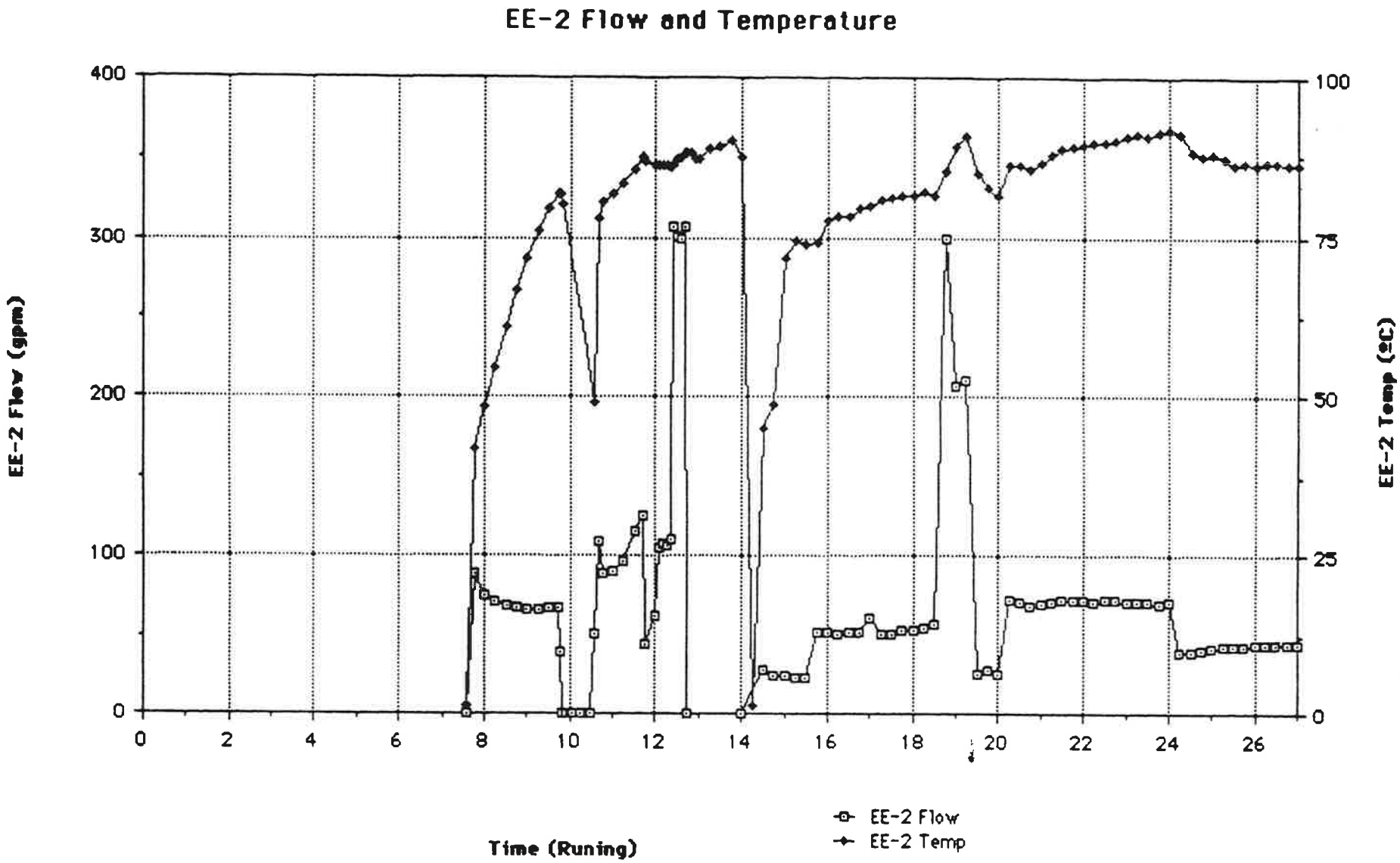


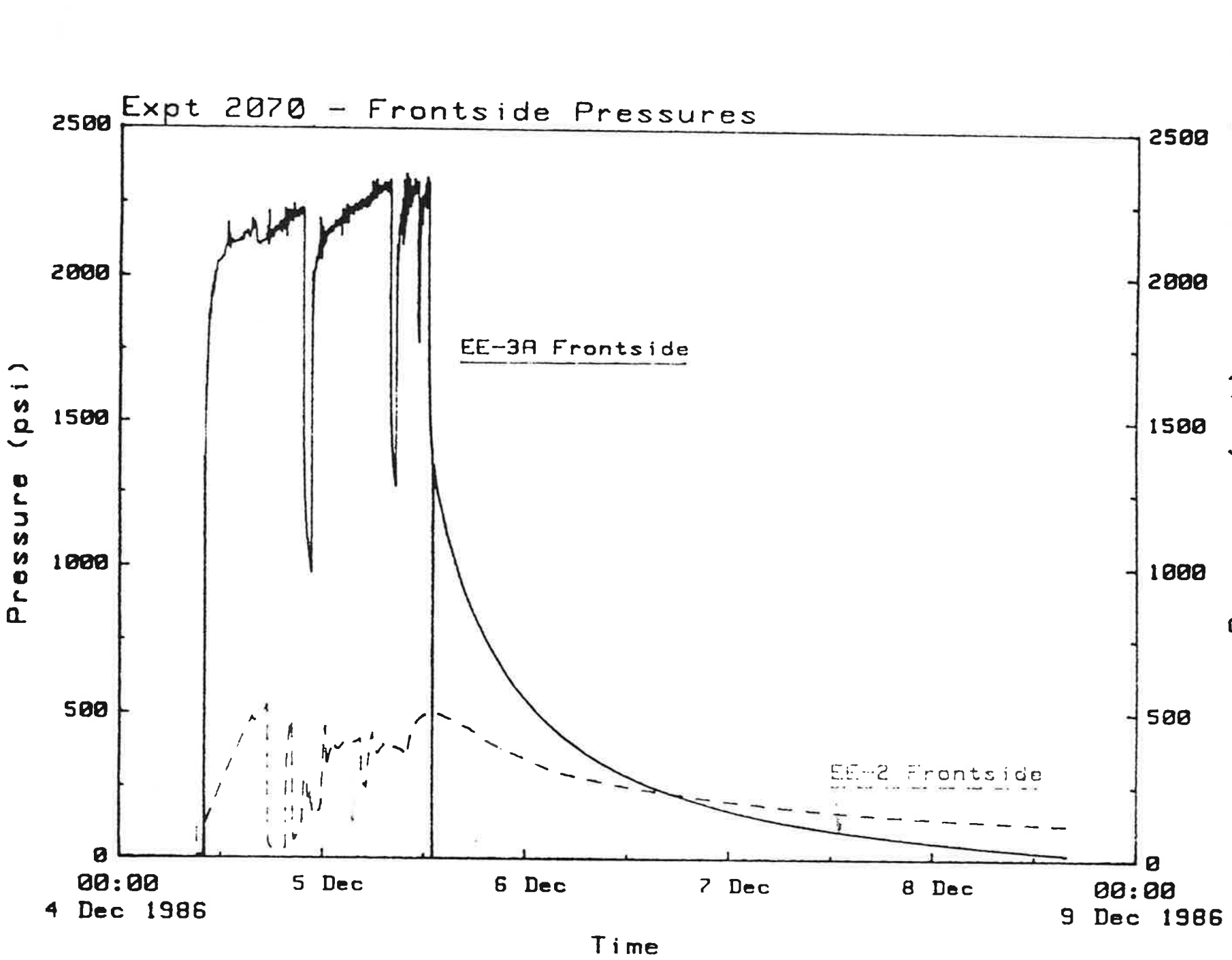
EXP. 2070

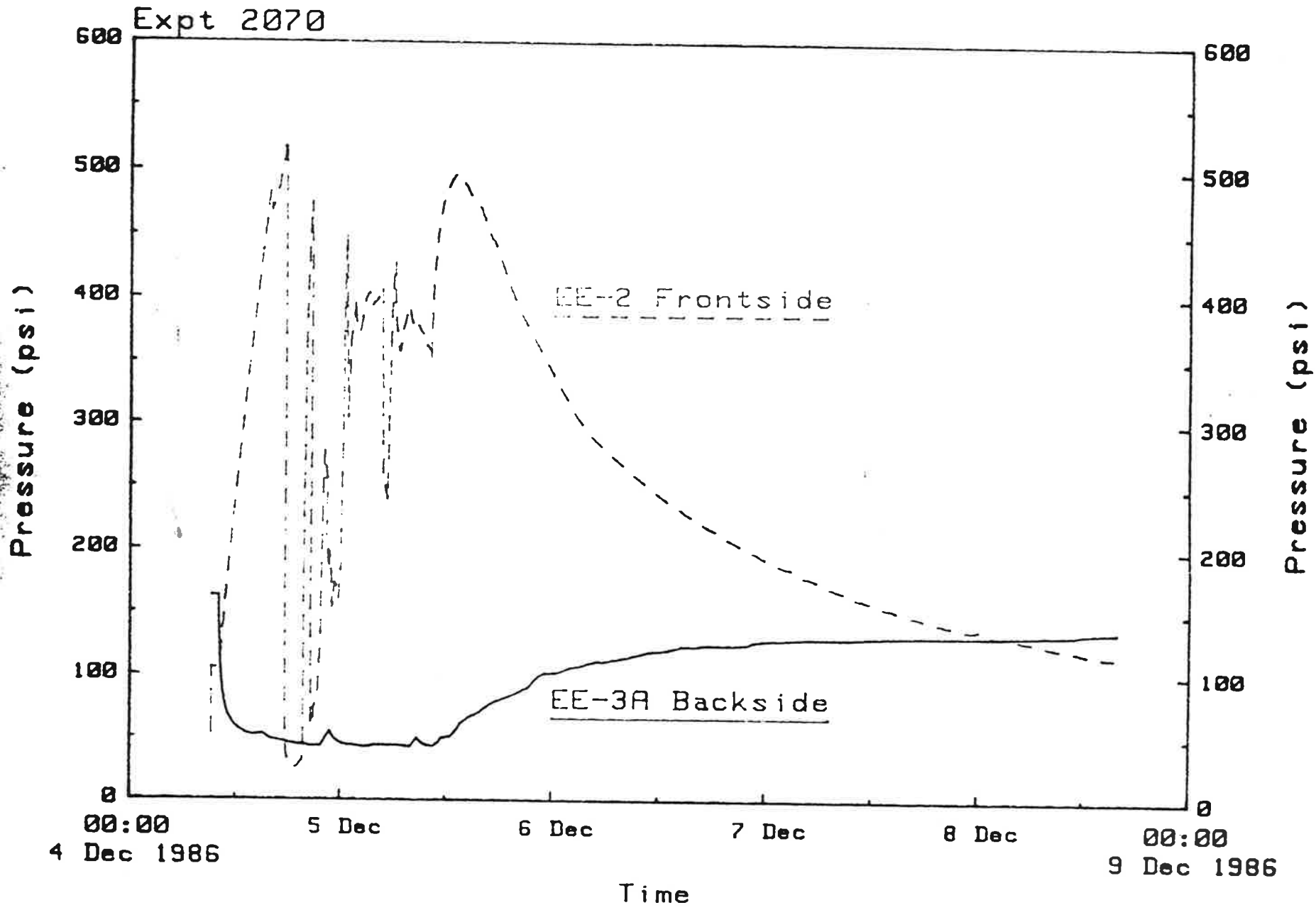
(00:00 to 13:00) 12/5/86



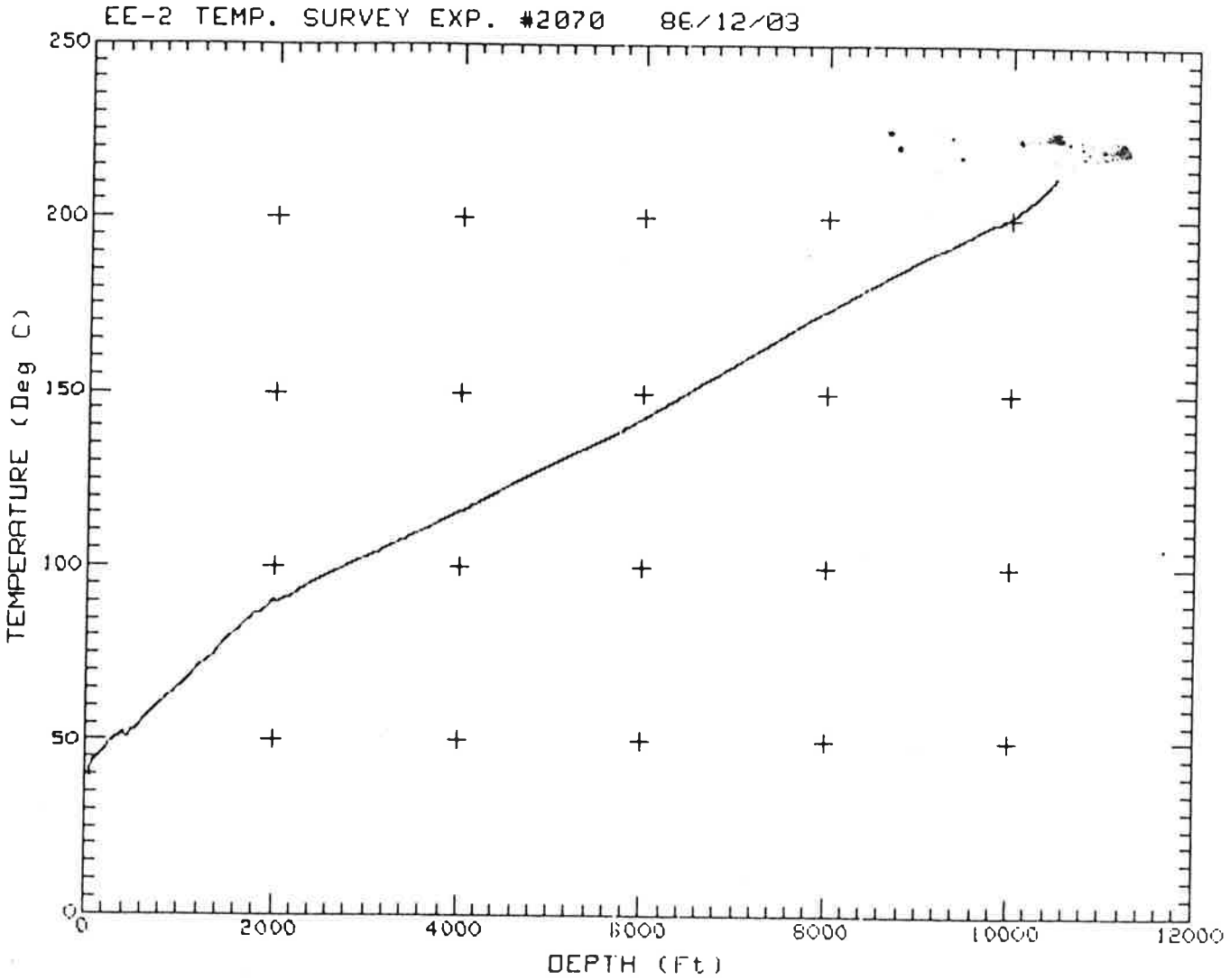
EXP. 2070


EE-2 Flow and Temperature
EE-2 Flow (gpm)
EE-2 Temp (SC)
Time (Runing)
EE-2 Flow
EE-2 Temp
400
300
200
100
0
100
75
50
25
0
0
2
4
6
8
10
12
14
16
18
20
22
24
26

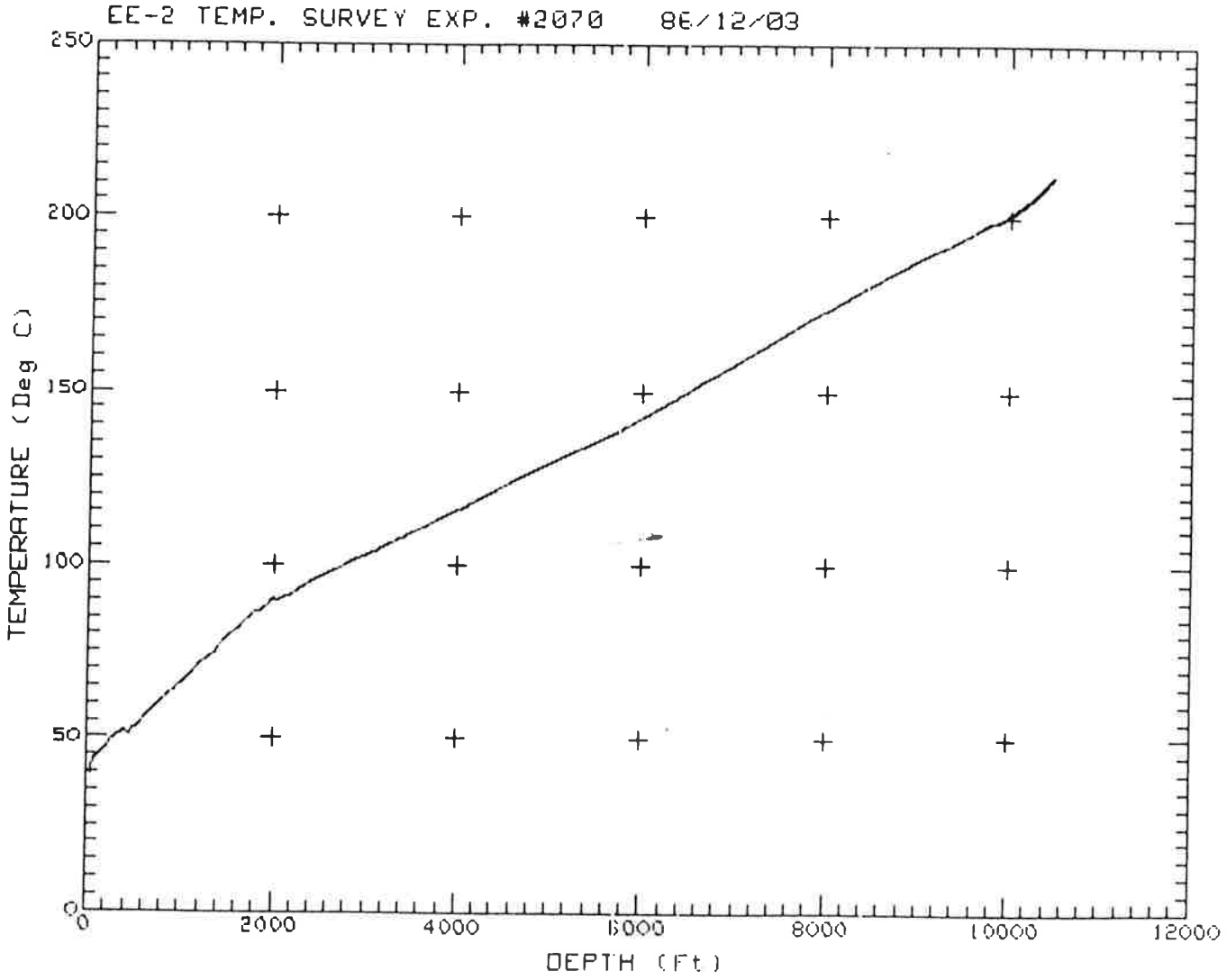

Expt 2070 - Frontside Pressures
2500
2000
1500
1000
500
0
Pressure (psi)
EE-3A Frontside
EE-2 Frontside
00:00
4 Dec 1986
5 Dec
6 Dec
7 Dec
8 Dec
00:00
9 Dec 1986
Time


Expt 2070
600
500
400
300
200
100
0
Pressure (psi)
EE-2 Frontside
EE-3A Backside
00:00
4 Dec 1986
5 Dec
6 Dec
7 Dec
8 Dec
00:00
9 Dec 1986
Time

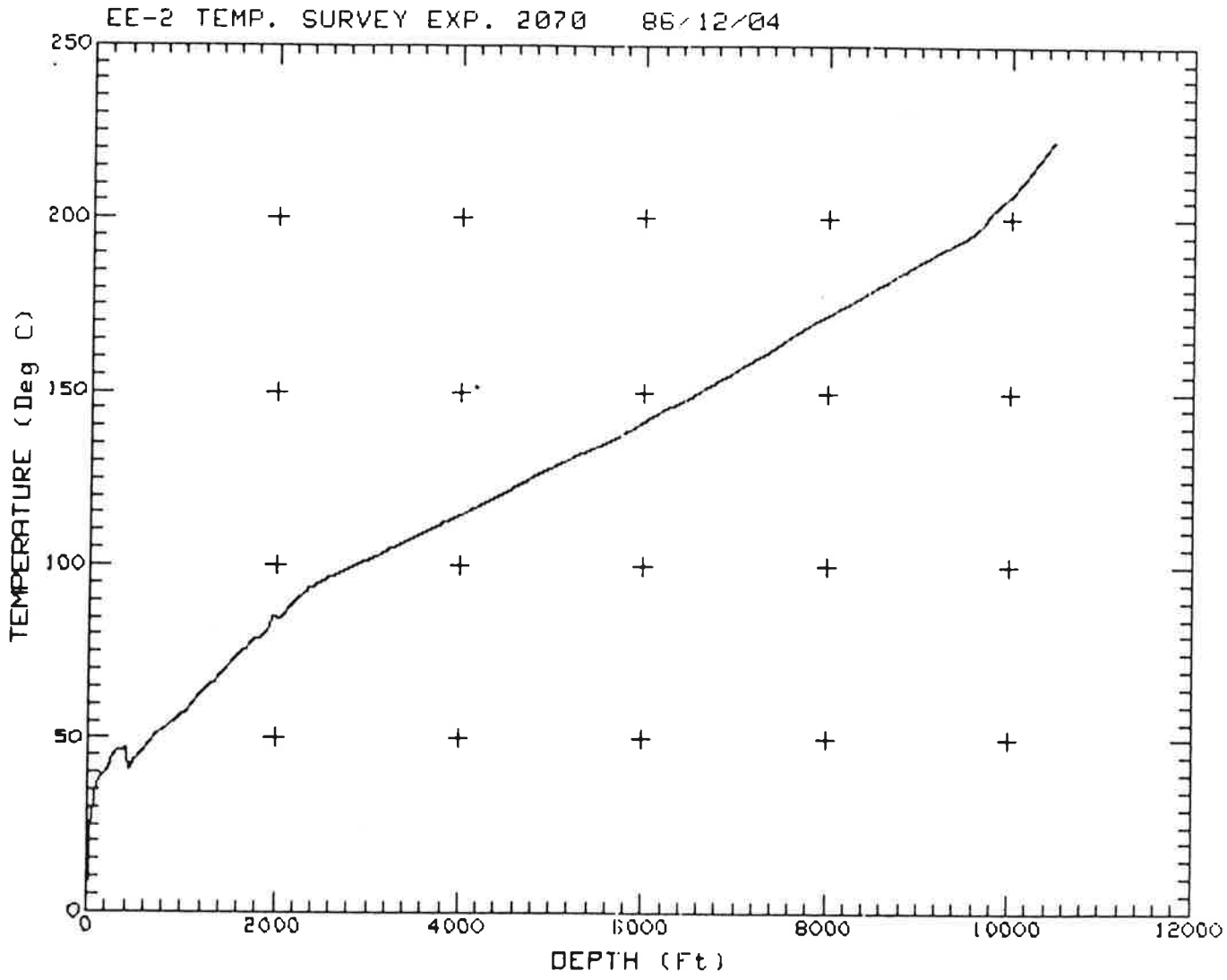
Background logging in.



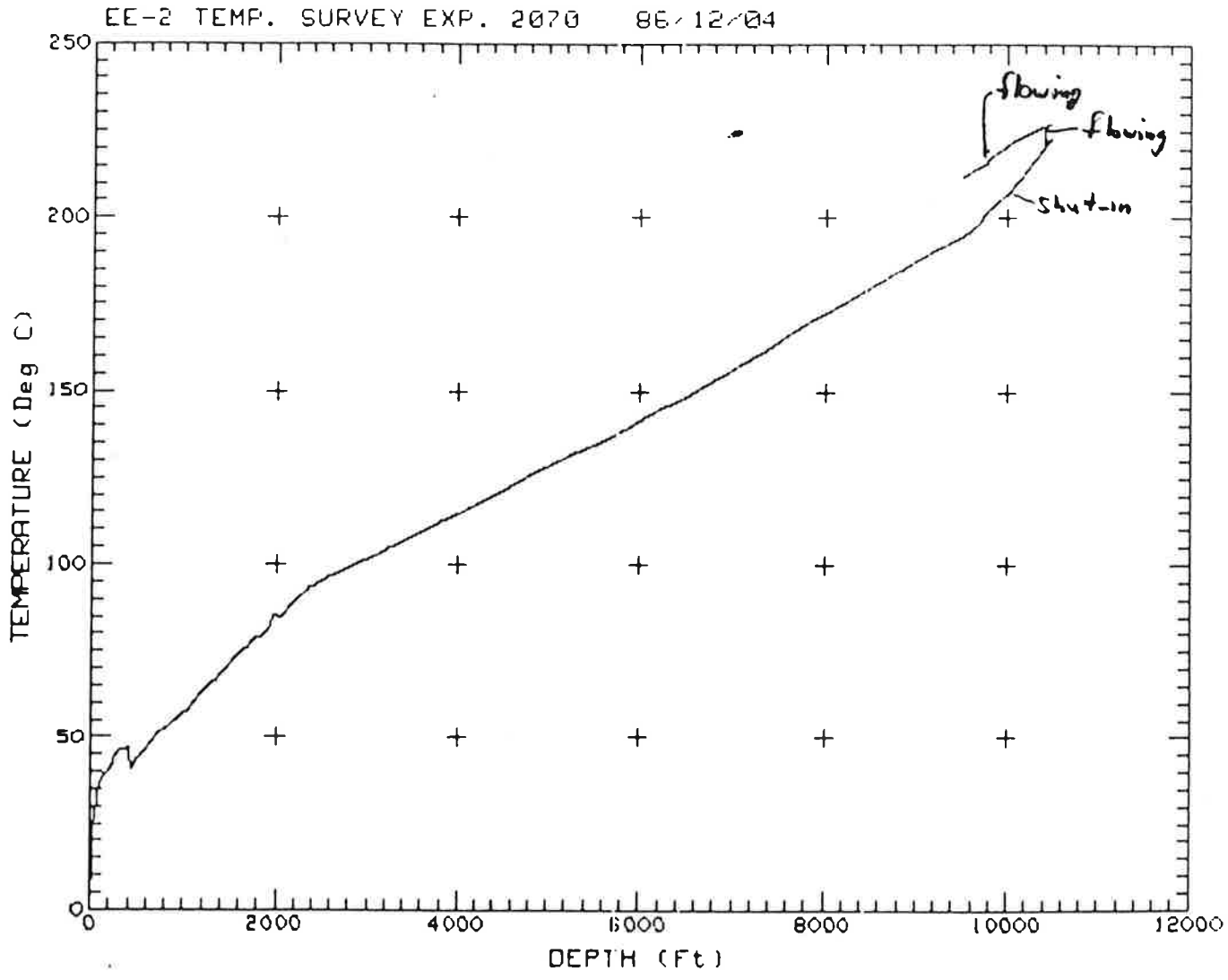
Background Logging out.



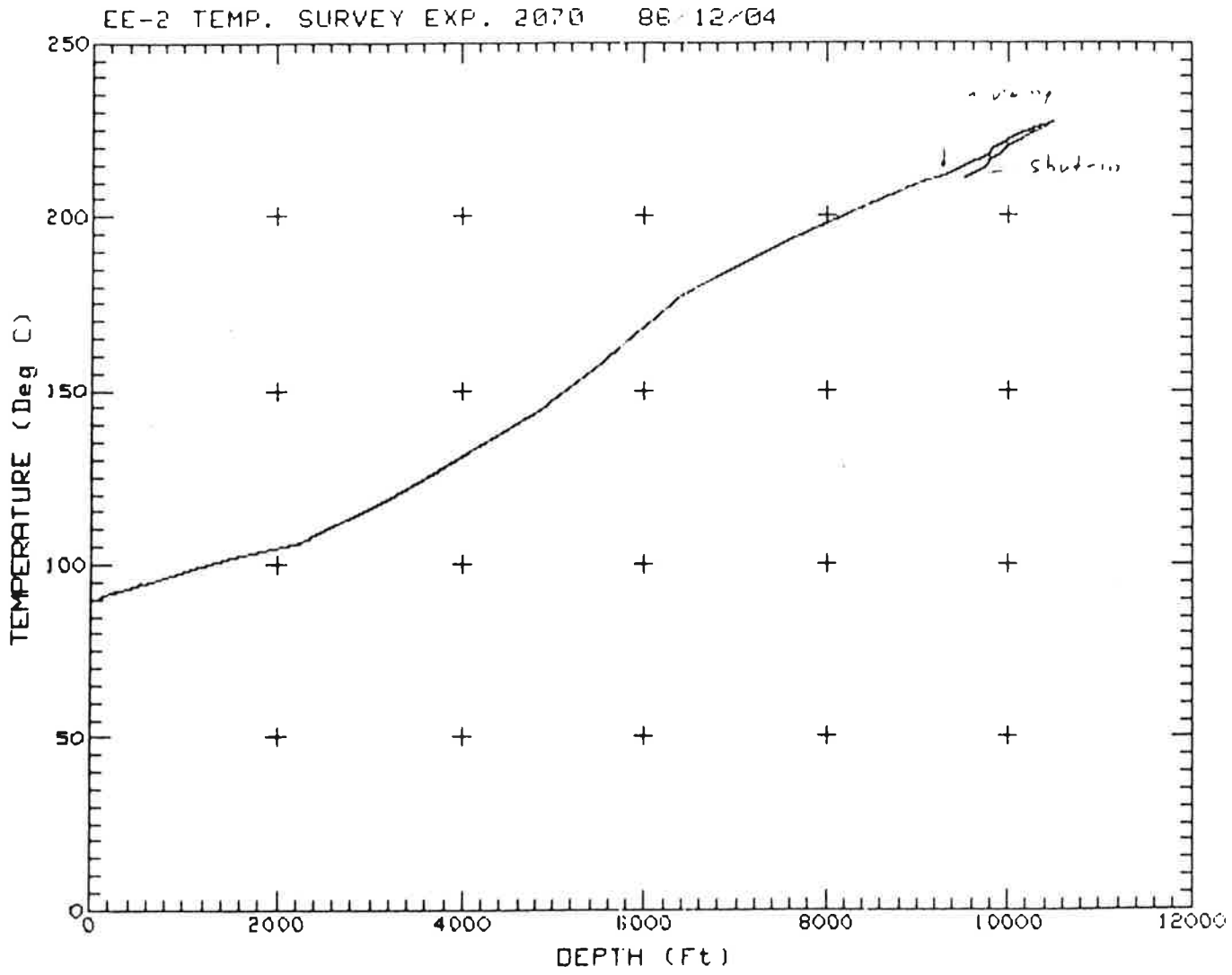
Log In under pressure,
Shut-in



1. Log in under pressure - shut-in
2. Park tool - flow well
3. Log up - flowing well



1. Log down - shut in
2. Log out - flowing well



Fenton Hill Report

Los Alamos National Laboratory
Los Alamos, New Mexico 87544

December 11, 1986

Jim Miller, ESS-4, Ext. 1915

Exp. 2070 Data Package:

The sentence in yesterdays data pack, relating to shut-ins for pump servicing ,that read "The first occurred at 23:55 for pump servicing." should have read "The first occurred at 21:43 for pump servicing."

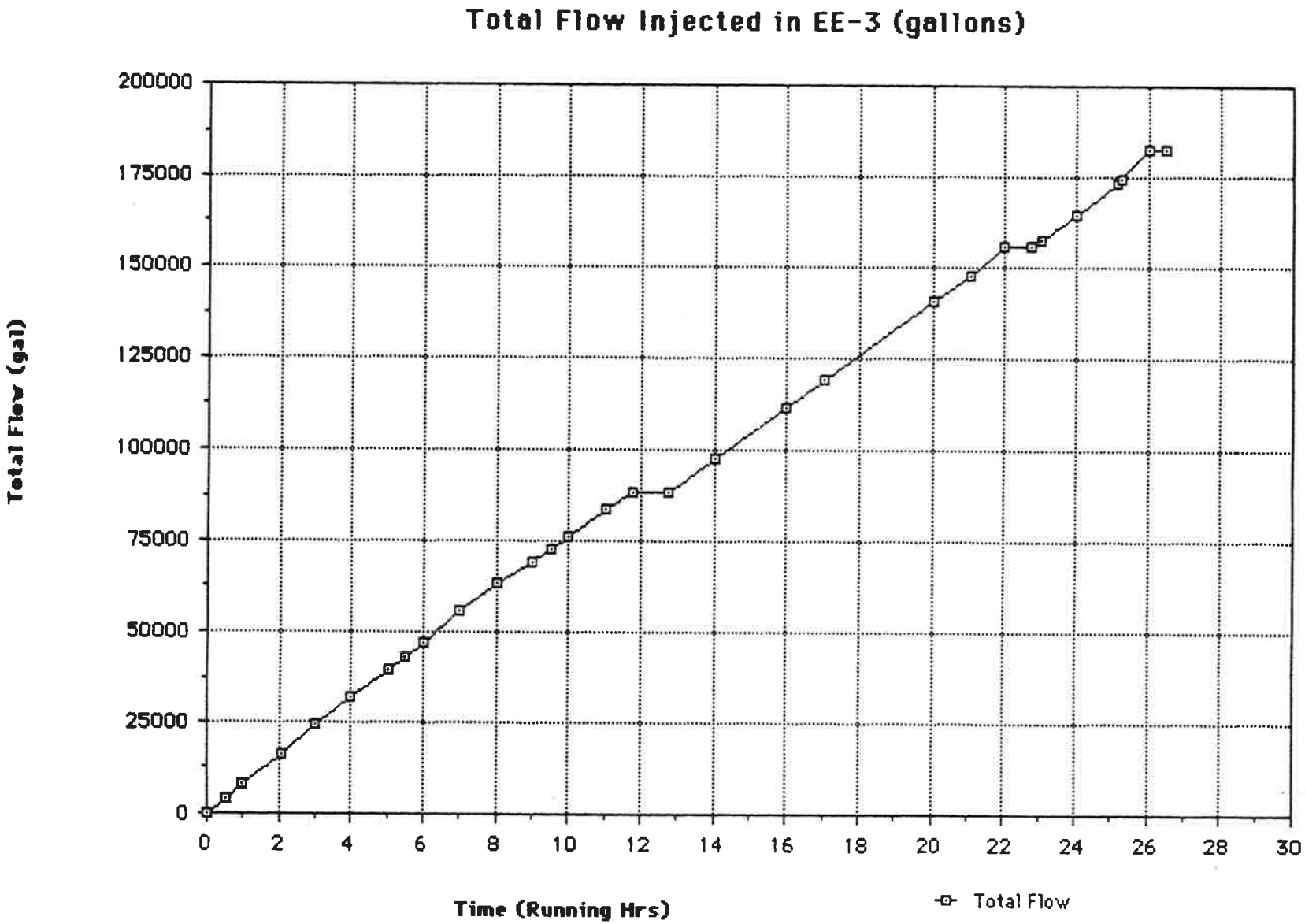
Attached is a graph of the total flow injected into EE-3.

The only other note is that EE-2 is still flowing at a low rate.

Distribution:

Doyle Evans, ESS-DO, MS D446
Bob Hendron, ESS-DOT, MS J979
Bert Dennis, ESS-6, MS J980
Jim Albright, ESS-4, MS J981
Joe Skalski, ESS-4, MS J981
Don Dreesen, ESS-4, MS J981
Zora Dash, ESS-4, MS J981
Mike Fehler, ESS-4, MS J979
Vince Trujillo, ESS-4, MS J981
William Hill, MAT- 9, MS P274
George Cocks, ESS-1, MS J979
Jim Tomson, WPT, MS J981
ESS-4 File
Hugh Murphy, ESS-DOT, MS J981
Paul Franke, ESS-DOT, MS J979
Marion Wickham, ESS-6, MS J980
Bruce Robinson, ESS-4, MS J981
Sharad Kelkar, ESS-4, MS J981
Ron Aguilar, ESS-4, MS J981
Gerry Jones, ESS-4, MS J981
Mark Malzahn, ESS-4, MS J981
Bob Potter, ESS-4, MS J979
Don Brown, ESS-4, MS J979
Schon Levy, ESS-1, MS J978
Jim Miller, ESS-4, MS J981

EXP. 2070


Total Flow Injected in EE-3 (gallons)
Total Flow (gal)
200000
175000
150000
125000
100000
75000
50000
25000
0
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
Time (Running Hrs)
Total Flow